

## CLAIMS

### That which is claimed is:

1. A method for reducing growth of a cancerous cell comprising:  
5 contacting a cancerous cell with an amount of an agent effective to reduce tyrosine  
threonine kinase (TTK) polypeptide activity in the cell;  
wherein reduction of TTK polypeptide activity in the cancerous cell reduces growth  
of the cell.
- 10 2. The method of claim 1 wherein said reduction of TTK activity is a result of a  
reduction of TTK polypeptide levels.
3. The method of claim 2 wherein the agent is a TTK antisense polynucleotide.
- 15 4. The method of claim 3 wherein the TTK antisense polynucleotide is contained  
in a viral-based vector.
5. The method of claim 1 wherein said reduction of TTK activity is a result of a  
reduction of TTK polynucleotide levels.
- 20 6. The method of claim 1 wherein the agent is a monoclonal antibody that  
specifically binds TTK.
7. The method of claim 1 wherein the TTK polypeptide comprises the amino acid  
25 sequence of SEQ ID NO:14.
8. An assay for identifying a candidate agent that reduces growth of a cancerous  
cell, comprising:  
detecting the activity of a TTK polypeptide in the presence of a candidate agent; and  
30 comparing the activity of the TTK polypeptide in the presence of the candidate agent  
relative to TTK polypeptide activity in the absence of the candidate agent;

wherein a reduction of TTK activity in the presence of the candidate agent relative to TTK activity in the absence of the candidate agent indicates the candidate agent reduces growth of a cancerous cell.

5           9.     The assay of claim 8, wherein said detecting step utilizes the polypeptide of SEQ ID NO:26 as a substrate.

10           10.    The assay of claim 8, wherein said detecting step uses a fragment of SEQ ID NO:26 susceptible to TTK phosphorylation as a substrate.

15           11.    The assay of claim 10, wherein said fragment comprises the polypeptide of SEQ ID NO:27 or 28.

            12.    The assay of claim 10 wherein the polypeptide fragment is biotinylated.

            13.    The assay of claim 8 wherein the TTK polypeptide is a product of expression using a system selected from the group of baculovirus, bacteria, yeast and mammalian systems.

20           14.    The assay of claim 13 wherein the TTK polypeptide is a product of expression using a baculovirus system.

            15.    The method of claim 8 wherein the TTK polypeptide comprises the amino acid sequence of SEQ ID NO:14.

25           16.    A method of identifying an agent that reduces TTK activity, the method comprising:

            contacting a cancerous cell displaying elevated expression of a TTK-encoding polynucleotide with a candidate agent; and

30           determining the effect of the candidate agent on TTK polypeptide activity;

wherein a decrease in TTK activity indicates that the agent reduces TTK activity and inhibits growth of the cancerous cell.

17. The method of claim 16 wherein said reduction of TTK activity is a result of a reduction of TTK polypeptide levels.

18. The method of claim 16 wherein said reduction of TTK activity is a result of a reduction of TTK mRNA levels

19. The method of claim 17 wherein the candidate agent is a TTK antisense polynucleotide.

20. The method of claim 19, wherein the TTK antisense polynucleotide is contained in a viral-based vector

21. The method of claim 16 wherein the cancerous cell is a breast cancer cell.

22. The method of claim 16 wherein the cancerous cell is a colon cancer cell.

23. The method of claim 16 wherein TTK polypeptide comprises the amino acid sequence of SEQ ID NO:14.

24. The method according to claim 18, wherein TTK activity is detected by detecting expression of a TTK-encoding polynucleotide.

25. A method of detecting cancer other than ovarian cancer in a subject, the method comprising:

detecting a level of expression of a TTK polypeptide in a test cell obtained from a subject suspected of having cancer; and

comparing the level of expression of the TTK polypeptide in the test cell to a level of expression in a normal non-cancer cell of the same tissue type;

wherein detection of an expression level of TTK polypeptide in the test cell that is significantly increased relative to the level of expression in the normal non-cancer cell indicates that the subject has cancer other than ovarian cancer.

5           26.     The method of claim 25, wherein the test cell is a colon cell.

27.     The method of claim 25, wherein the test cell is a breast cell.

28.     A method of detecting cancer other than ovarian cancer in a subject, the  
10     method comprising:  
          detecting a level of expression of a TTK polynucleotide in a test cell obtained from a  
          subject suspected of having cancer; and  
          comparing the level of expression of the TTK polynucleotide in the test cell to a level  
          of expression in a normal non-cancer cell of the same tissue type;  
15     wherein detection of an expression level of TTK polynucleotide in the test cell that is  
          significantly increased relative to the level of expression in the normal non-cancer cell  
          indicates that the subject has cancer other than ovarian cancer.

29.     The method of claim 29, wherein the test cell is a colon cell.

20           30.     The method of claim 29, wherein the test cell is a breast cell.

31.     A method for assessing the prognosis of a cancerous disease other than  
ovarian cancer in a subject, the method comprising:

25           detecting expression of a TTK-encoding polynucleotide in a test cancer cell of a  
          subject; and

          comparing a level of expression of a TTK-encoding polynucleotide in the test cancer  
cell with a level of expression the polynucleotide in a control non-cancer cell;

          wherein the level of expression of TTK in the test cancer cell relative to the level of  
30     expression in the control non-cancer cell is indicative of the prognosis of the cancerous  
disease

32. The method of claim 31, wherein said detecting expression is by detection of a TTK-encoding transcript.

5 33. The method of claim 31, wherein the test cell is a colon cell.

34. The method of claim 31, wherein the test cell is a breast cell.

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